

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Robert S. Beyersdorf et al.

Serial No.: 205,037 / Group Art Unit: 153

Filed: June 10, 1988                      Examiner: N. Nutter

**For: LATEX COMPOSITIONS USEFUL AS BINDERS IN COMPOSITE BOARD HAVING DIMENSIONAL STABILITY AND STRENGTH**

AFFIDAVIT I UNDER 37 CFR §1.132

STATE OF MICHIGAN) ) ss.  
County of Midland)

William Keskey, being duly sworn, disposes and says that:

He is a citizen of the United States of America  
residing in the City of Midland, County of Midland,  
State of Michigan;

He is by profession a research scientist, having been graduated from Northern Michigan University with a degree of Bachelor of Science, and a major in chemistry;

He has been employed since 1964 by The Dow Chemical Company, Midland, Michigan, in research and development activities and has carried out considerable research and development in the field of latex polymers and has studied their chemical and physical properties.

He has either prepared the following Latexes A and B or the latexes were prepared under his direction.

#### Latex A

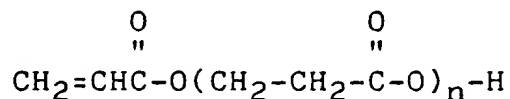
Into a 1-liter glass reactor immersed in a temperature controlled water bath was added 359 grams of deionized water, 3.0 grams of a 1 percent active aqueous pentasodium diethylene triamine pentaacetate solution and 3.0 grams of fumaric acid. The reaction was heated to 80°C and 5.06 grams of a 27 percent solids seed latex containing polystyrene polymer particles was added. The reactor was purged with nitrogen and heated to 90°C and over a 3 hour period was added a monomer stream containing 270 grams of styrene, and 27 grams of ethyl acrylate.

Beginning at the start of the monomer stream was added over a 3 1/4 hour period, an aqueous stream containing 90.0 grams of deionized water, 1.5 grams sodium persulfate, 0.3 grams of sodium hydroxide and 3.3 grams of a 45 percent active solution of an alkylated diphenyl oxide disulfonate surfactant. Following the addition of the monomer and aqueous streams, the reactor was maintained at 90°C for about 30 minutes, then cooled. The pH of the latex dispersion was adjusted to 5.0 with a 17 percent aqueous solution of sodium hydroxide.

#### Latex B

Into a two-gallon glass-lined jacketed steel pressure reactor was added 2380 grams of deionized water, 24 grams of a 1 percent active aqueous pentasodium diethylene triamine pentaacetate solution, and then 58.2 grams of a 27.9 percent solids seed latex containing polystyrene polymer particles. The reactor was purged with nitrogen and heated to 90°C and over a 3-hour period was added a monomer stream containing 719 grams of styrene, 599 grams of butadiene, 228 grams of acrylic acid and 12 grams of a chain transfer agent.

Beginning at the start of the monomer stream was added over a 3-hour period, a second monomer stream containing 839 grams of styrene and 12 grams of a  $\beta$ -carboxyethyl acrylate represented by the following formula:



wherein  $n = 0-4$ .


Beginning at the start of the monomer stream was added over a 3 and 1/2-hour period, an aqueous stream containing 502 grams of deionized water, 12 grams sodium persulfate, 12 grams of sodium hydroxide (20 percent solution) and 27 grams of a 45 percent active solution of an alkylated diphenyl oxide disulfonate surfactant. Following the addition of the monomer and aqueous streams, the reactor was maintained at 90°C for about 1/2 hour, then cooled. The pH of the latex dispersion was adjusted to 5.0 with a 17 percent aqueous solution of sodium hydroxide. The latex was then steam distilled to remove unreacted monomers.

The Glass Transition Temperatures for the latexes are determined by differential scanning calorimetry using a duPont de Nemours 1090 Thermal Analyzer.

The Glass Transition Temperature for Latex A is 97°C and the Glass Transition Temperature for Latex B is 34.6°C.

He labeled the Latex polymer samples and transferred possession of them to John D. Camisa for their use as components in Ceiling Tiles and for the evaluation of the properties the Ceiling Tiles exhibit which are presented in Affidavit II filed herewith.

Further Affiant says not.

  
William Keskey

Sworn to and subscribed before me this 2<sup>nd</sup> day  
of December, 1988

  
Notary Public

LMS/SSG/sg

**JACKIE L. RAYMOND**  
Notary Public, Midland County, Michigan  
My Commission Expires September 23, 1991

jfn